

## Growth, photosynthesis and biomass allocation of different kenaf (*Hibiscus cannabinus* L.,) accessions grown on sandy soil.

### ABSTRACT

Growth, photosynthesis, and biomass allocation of kenaf accessions were investigated. Forty kenaf accessions from tropical and subtropical regions of the world were grown on marginal sandy soil in a field at Kelantan to determine differences in their growth, photosynthesis and biomass allocation. The experiment was arranged using three replicates in a randomized complete block design. Basal diameter, plant height, leaf number, leaf area and photosynthesis were measured, these being the determinants of growth and biomass production. Plant roots, stems and leaves were separated and biomass content determined at harvest. Accession 35 had the highest value for basal diameter (17.44 mm), plant height (251.73 cm), leaf quantity (81.55), leaf area (1455.62 cm<sup>2</sup> plant<sup>-1</sup>) and photosynthesis (16.92  $\mu\text{mol m}^{-2}\text{s}^{-1}$ ), followed by accession 28. A positive relationship was noticed between plant height, leaf area, photosynthesis, biomass production, root mass and leaf area. Total biomass for the different kenaf accessions ranged from 26.26 to 93.06 g plant<sup>-1</sup> (-1 needs to be superscripted). Stems accounted for the greatest proportion of dry mass (67.05%), followed by roots (21.15%). Dry mass accumulation in the stem was highest in accession 35, followed by accession 28. Using cluster analysis, the accessions were divided into two major groups, in which accessions 35 and 28 from the first group had the highest values of all measured parameters. The results of the study will aid in the selection of better accessions for growers to produce kenaf that is best suited to marginal sandy soil.

**Keyword:** Biomass; BRIS soil; Growth; Kenaf accessions; Photosynthesis.